

REMARKS

If the Examiner believes that there are any unresolved issues in any of the claims now pending in the application, the Examiner is urged to telephone George Wolken, Jr. at (408) 567-0340 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

A. Amendments to the specification:

The amendments to the specification are to correct possible ambiguities of expression and introduce no new matter nor affect the scope of the disclosure.

Specifically:

- 1) [0005]: Paragraph [0005] has been amended to properly designate the particular DFB laser as "alpha" (or equivalently " α ") as is customary in the field.
- 2) [0031]: Paragraph [0031] has been amended to clarify a possible ambiguity and indicate that the expression "carrier surfaces" refers to the surfaces between, as well as adjacent to, the waveguiding ridges consistent with the usage in paragraph [0032] and elsewhere.
- 3) [0032]: Paragraph [0032] has been amended to clarify the designation of lateral grating

structure as including both structures 22 and 23,
as Fig. 1c lacks a designation for 22.

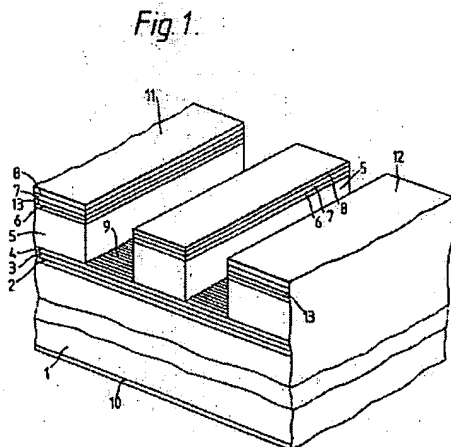
B. Claim Rejections - 35 U.S.C. § 112

The Examiner has rejected claim 7 under 35 U.S.C. § 112 for being indefinite. Claim 7 has been amended to correct the obvious grammatical oversight and, thus, to meet the objections of the Examiner.

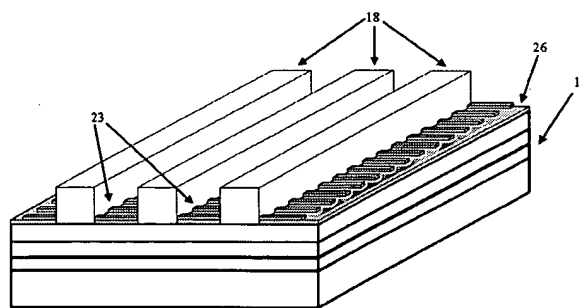
C. Claim Rejections - 35 U.S.C. §102; claims 1-4, 6

The Examiner has rejected claims 1-4 and 6 under 35 U.S.C. § 102(b) as being anticipated by Westbrook US Patent 4,754,459 ("Westbrook"). Applicants respectfully traverse this rejection on the basis of the above amendments to claim 1 and on the basis of MPEP § 2143.

We include herein a side-by-side comparison of figures from Westbrook and from the present application.



Westbrook: Fig. 1



Present Application: Fig. 1c

In contrast to embodiments of the present invention, the central ridge in Westbrook, 5, differs from the outer ridges 11 and 12 in that electrical current flows only through the central ridge 5. This is clearly enunciated in Westbrook Col. 4 lines 31-36 in which Westbrook places an insulating silica layer, 13, on the outer ridges 11 and 12, but not on the central ridge 5. Insulating layer 13 separates conducting layers 7 and 8 from the active layer 3, thereby preventing current flow through outer ridges 11 and 12.

Embodiments of the present invention permit current flow through more than one waveguide ridge, thereby achieving a distribution of laser power through multiple waveguide ridges, thereby achieving higher laser output powers without excessive heating. Claim 1 has been amended to clarify this distinction.

In support of patentability, MPEP § 2143.03 requires "To establish *prima facie* obviousness of the claimed invention, all the claim limitations must be taught or suggested in the prior art. ... All words of a claim must be considered in judging the patentability of that claim against the prior art." (citations omitted, emphasis added). While MPEP § 2143.03 strictly relates to obviousness under 35 U.S.C. § 103, applicants respectfully submit that no lesser a standard applies in determining anticipation under 35 U.S.C. § 102. In particular, claim 1 (as amended) includes the element of electrical current

injection through at least two of the waveguide ridges, an element not taught or suggested by Westbrook.

Also from MPEP § 2143.03 "If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious." (citations omitted). Applicants respectfully submit that no lesser standard applies to a determination of anticipation under 35 U.S.C. § 102. Applicants respectfully submit that claims 2-6, depending on patentable claim 1, are thus patentable.

D. Claim Rejections - 35 U.S.C. §102; claims 7-10

The Examiner has rejected claims 7-10 under 35 U.S.C. § 102(b) as being anticipated by Fiddymment *et al* US Patent 4,805,184 ("Fiddymment"). Applicants respectfully traverse this rejection on the basis of the above amendments to claim 7 and on the basis of MPEP § 2143.

Claim 7 has been amended to meet the objections of the Examiner under 35 U.S.C. § 112 and, in addition, "continuous" has been added to step (a) to further distinguish the present invention from Fiddymment. Support for the use of a continuous epitaxial process is found in paragraph [0010] of the specification, among other places.

Applicants respectfully submit that the growth process of Fiddymment is not continuous, as easily seen by referring to Figs. 1 and 5 of Fiddymment.

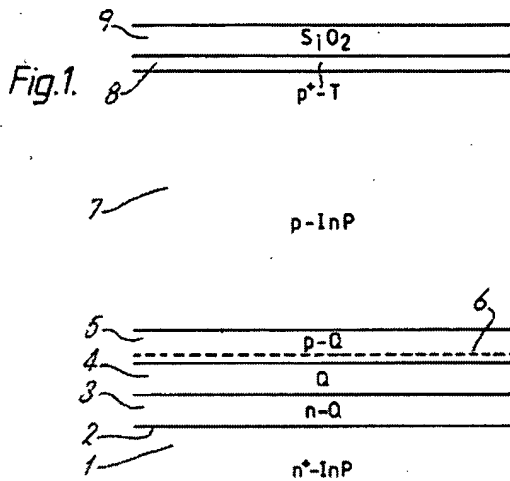


Figure 1. Fiddymment et al.

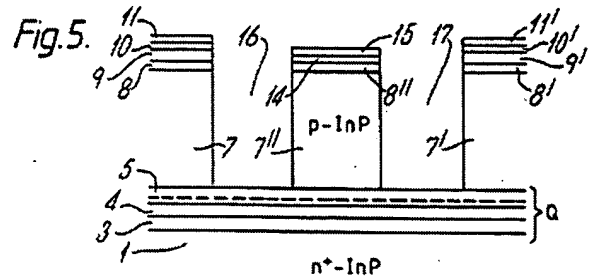


Figure 5. Fiddymment et al.

Fiddymment discloses a process wherein the growth of the laser structure is interrupted after the growth of layers 3, 4 and 5 (Col. 5, lines 35-45). In addition, as discussed in Fiddymment @ Col. 5, lines 46-56, layer 5 is corrugated by chemical etching, thereby forming the lattice structure. Finally, the corrugated layer 5 is overgrown by continuing the epitaxial procedure. In Figs. 1 and 5 of Fiddymment, the corrugated lattice layer is indicated by a dotted line, 6.

Fig. 1 of Fiddymment shows their laser structure after completion of the epitaxial growth and before any ridge waveguides are etched. The presence of corrugated layer 6 at this stage in the Fiddymment process is possible only when the growth of the laser structure is interrupted to define the grating, followed by a separate growth step to complete the laser structure. Fig. 5 of Fiddymment shows the dotted line under the ridge 7, which can only be constructed

when the gratins are overgrown and the ridge process follows the fabrication of the ridges.

This multi-step process of Fiddymment should be contrasted with the continuous process of the amended claim 7 of the present application, in which the epitaxy is completed in one step followed by ridge fabrication and then followed by fabrication of the gratings. Applicants respectfully submit that this continuous epitaxial process is neither taught nor suggested by Feddymment and, indeed, is not a feasible fabrication procedure for the structure Fiddymment discloses.

In support of patentability, MPEP § 2143.03 requires "To establish *prima facie* obviousness of the claimed invention, all the claim limitations must be taught or suggested in the prior art. ... All words of a claim must be considered in judging the patentability of that claim against the prior art." (Citations omitted, emphasis added). While MPEP § 2143.03 strictly relates to obviousness under 35 U.S.C. § 103, applicants respectfully submit that no lesser a standard applies in determining anticipation under 35 U.S.C. § 102. In particular, claim 7 (as amended) includes the element of a continuous epitaxial process, an element not taught or suggested by Fiddymment.

Also from MPEP § 2143.03 "If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious." (citations omitted). Applicants respectfully submit that no lesser standard applies to a determination of anticipation under 35 U.S.C. § 102. Thus, Applicants respectfully submit that

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claims 8-10, depending on patentable claim 7, are thus patentable.

E. Claim Rejections - 35 U.S.C. §103

The Examiner has rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Westbrook in view of Forchel et al (US 6,846,689). As argued above, since claim 5 depends on patentable claim 1, Applicants respectfully cite MPEP § 2143.03 to support patentability of claim 5.

CONCLUSION

In view of the above amendments and arguments, the Applicants respectfully submit all claims 1-10 are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

Respectfully submitted,

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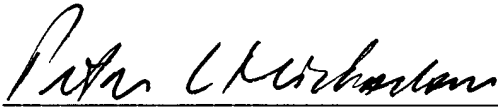
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